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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,895	03/19/2004	Akira Oosawa	Q80309	8054

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EXAMINER

WANG, CLAIRE X

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/803,895	OOSAWA, AKIRA	
	Examiner	Art Unit	
	Claire Wang	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs, which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

2. Claim 8 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 8 defines a program that cause a computer to execute a method embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded

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on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed program that cause a computer to execute a method can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure. For the purposes of furthering prosecution on claim 8, examiner will read to claim to contain computer-readable medium.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claim 3 is rejected under 112 second paragraph because it is unclear what "symptom" stands for. Examiner suggests changing the word "symptom" to "sign". For the purposes of further prosecution on said claim, examiner will read claim 3 as "...the type of patter is a type of sign which is..."

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeo et al. (US 5,732,121 hereinafter "Takeo").

As to claim 1, Takeo teaches an image judging apparatus (detection of abnormal patterns; Col. 5, lines 61-64) comprising a candidate region extracting means for extracting candidate regions for predetermined patterns from medical image data (#1 Fig. 1 teaches an iris filter processing step which detects the region representing the tumor pattern within a radiation image is detected; Col. 15, lines 1-9); an inner/outer outline image extracting means for extracting inner/outer outline images (virtual circle has an area approximately equal to the area of the pattern and the radius is calculated, from the radius a first region and a second region is defined; Col. 16, lines 41-58), which are in the vicinity of the outline of the candidate regions extracted by the candidate region extracting means (Fig. 6); and a pattern judging means for judging the type of pattern within the candidate regions, by employing characteristic amounts of the inner/outer outline image extracted by the inner/outer outline image extracting means

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(#8 Fig. 1 teaches a judging step that decides whether or not the region extracted is an abnormality or a false positive).

As to claim 7 it is the method claim of claim 1. Therefore claim 7 is analyzed in the same way as claim 1. Please see above for detail analysis.

As to claim 8, it is the computer-readable medium claim of claim 1. Therefore claim 8 is analyzed in the same way as claim 1. Please see above for detail analysis.

As to claim 9, it is the same as claim 8. Please see above for detail analysis.

As to claim 2, Takeo teaches wherein the type of pattern is one of a normal pattern, an abnormal pattern, a benign abnormal pattern, and a malignant abnormal pattern (#8 Fig. 1 teaches a judging step that decides whether or not the region extracted is an abnormality or a false positive).

As to claim 3, Takeo teaches wherein the type of pattern is a type of sign, which is similar to the pattern (once flags 1-6 have been set to be "1" it is judged that the pattern is the tumor pattern otherwise it is judged to be a false positive; Col. 18, lines 1-6).

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As to claim 4, a density pattern extracting means, for extracting density patterns, which are present within unit pixel groups (picture element of interest; Col. 19, line 26) that constitute the inner/outer outline images, extracted by the inner/outer outline image extracting means (detecting a definite prospective abnormal pattern in accordance with the probability density function information; Col. 6, lines 29-33); a presence frequency calculating means, for judging which of the density patterns the unit pixel groups of the inner/outer outline images are similar to, and calculating presence frequencies by counting the presence of the similar density patterns within the inner/outer outline image (the picture element of interest is counted; Col. 19, lines 24-29); and a classifying means, for classifying the inner/outer outline images according to the type of pattern, based on the presence frequencies of the density patterns (#8 Fig. 8); wherein the pattern judging means judges to which classification the candidate region belongs, from among the classifications of the inner/outer outline images, which were classified according to the type of pattern by the classifying means, by employing the presence frequencies of the density patterns therein, derived by the presence frequency calculating means, as characteristic amounts (#8 Fig. 8).

As to claim 6, it is the same as claim 4. Please see above for detail analysis.

As to claim 5, Takeo teaches wherein the inner/outer outline image extracting means divides the inner/outer outline image into two or more regions (Fig. 1, #4-1 and #4-2 shows separating the obtained regions into a 1st region and a 2nd region) comprising an outline edge, an outline interior and an outline exterior (1st region is defined to have a $r < 4/3R$ and the 2nd region is defined to be $R < r < 4/3R$; Fig. 1); and the pattern judging means judges the type of pattern based on the characteristic amount of at least one of the regions (the judging step of Fig. 1 is dependent from the calculated results of regions 1 and 2).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gilhuijs et al. (6,112,112) teaches a method and system for assessment of tumor extent in MRIs.

Nakajima et al. (5,761,334) teaches an apparatus for computer-aided diagnosis of medical images having abnormal patterns.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire Wang whose telephone number is 571-270-1051. The examiner can normally be reached on Mid-day flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Claire Wang
04/13/2007



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